

**INSTITUTE OF SCIENCE , MUMBAI – 400032.**

**Tender Notice**

Sealed tenders in two envelopes system (two bid system) are invited from the manufacturers and authorized agents/suppliers for supply of the following equipment's for the use of Institute of Science ,15, Madam Cama Road, Mumbai 400 032.

<b>SR.NO.</b>	<b>NAME OF THE EQUIPMENTS</b>	<b>Quantity</b>
1.	HPLC System	01 No.
2.	Bomb calorimeter.	01 No.
3.	Cell sorter	01 No.
4.	Ultra sonicator	01 No.
5.	Compound student microscope	40 Nos.
6.	Bioreactor	01 No.
7.	Rotary incubator shaker.	01 No.
8.	HPLC	01 No.
9.	Scientific Microwave Synthesis System (Microwave Oven)	01 No.
10.	Rota Evaporator	01 No.
11.	Double Distillation Unit.	01 No.
12.	Furnace (High Temperature)	01 No.
13.	Voltametric System.	01 No.
14.	Vaccum pump	06 Nos.
15.	Electronic balance.	03 Nos.
16.	PH Meter	02 Nos
17.	Water Purification System.	01 No
18.	Fermentor.	01 No.
19.	Ultrasonicator	01 No.
20.	HPLC System	01 No.
21.	Ultracentrifuge	01 No.
22.	Rotary Vaccum Pump	01 No.
23.	Microwave oven	02 Nos.
24.	Orbital shaker	01 Nos.
25.	UV-Visible Spectrophotometer.	01 No
26.	Automatic Autoclave.	01 No.
27.	Bench top Incubator shaker.	02 Nos.
28.	Sonicator	01 No.
29.	Termostatic waterbath with window	01 No
30.	Maffle Furnace/Electric Furnace.	01 No
31.	BOD Incubator	01 No.
32.	Digital Balance	02 Nos.
33.	Benchtop high speed Refrgerated sentryfuge	01 No.
34.	Vaccum Coating System	01 No
35.	Potentiostat / Galvanostat	01 No.

36.	Microbalance	02 Nos.
37.	Single Crystal Growth System	01 No.
38.	Microwave oven	01 No.
3.	Hydraulic Press Machine	01 No.
40.	Embedded trainer kit	01 set each.
41.	Laser Scanning Confocal Microscope System.	01 No.

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- 1 The tender form and terms & condition along with detailed specifications of the above will be available between \_\_\_\_\_ and \_\_\_\_\_ from the office of Director, The Institute of Science, 15, Madam Cama Road, Mumbai 400 032, on any working day between 11.00 am to 1.00 pm and 2.00 pm to 4.00 pm on payment of Rs 2000/- tender form price as per rule(non refundable).
- 2 The tender in sealed cover duly subscribed with tender No. and date as indicated (as mentioned in the terms & conditions) should be submitted to the office of the Director on or before \_\_\_\_\_ upto 3.00 pm
- 3 The undersign reserves the right to enhance or reduce the quantity or to decide not to purchase any tender in full or in part to reject any or all tenders without assigning any reason whatsoever.
4. Tender submitted in the prescribed time limit shall be opened on \_\_\_\_\_ at 1.30 pm..

DIRECTOR  
Institute of Science  
Mumbai-32

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Serial No. _____	Tender No. 7/I.Sc./DPDC/08-09/77	Rs. 2,000/-
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Serial No. _____	<b>TENDER FORM</b>	Rs. 2,000/-
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(To be returned with the tender to the Director, Institute of Science, Mumbai - 32.)  
Tender No. 7/I.Sc./DPDC/08-09/77

- 1) Last date of submission of tender : 21/08/2008 upto 3.00 p.m.
- 2) Date of opening of tender : 25/08/2008 at 1.30 p.m.
- 3) Tender shall remain valid till : 31/3/2009

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Sr.No	Description	Quantity
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### **BOTANY.**

**(Sr.No. 1 to 7)**

**1 HPLC SYSTEM:**

**1 No.**

All the modules should be modular & stackable one over another. Each module should have its own keypad for standalone operation.

**PUMP**

Pump should be Quaternary gradient

Flow rate : 0.01 ml -10 ml/min.

Max. Pressure : 6200 psi for entire flow rate range i.e. up to 10ml/min.

Operation : Stand-alone operation as well as external control.

Method Storage : At least 15 method storage with 15 methods per method.

Upper and lower pressure limit user settable.

Automated volume compensation on solvent expansion or contraction on mixing in gradient operation.

Automated compressibility correction

Diagnostics : Extensive instrument diagnostics should be available.

**UV/VIS DETECTOR**

1. Optics : Dual Beam
2. Wavelength Range : 190 -700 nm.
3. Bandwidth : 5 nm
4. Wavelength Accuracy : 1nm
5. Noise : 1 x 10-5 AU at 210, and 280 nm for 1 sec. measurement under flowing conditions.
6. Drift : 1 X 10-4 AU/hr.
7. Method : At least 5 method storage
8. Programming : Wavelength Programming with 15 steps per method. Methods can be linked.
9. Source : D2 and Tungsten lamp
10. Absorbance Range : 0.0005 - 2.0000 AUFS
11. Linearity : 1% upto 2.0000
12. Scan : Scan facility for spectral information
13. Diagnostics : All instrumental diagnostics with display of lamp hours.
14. Operation :Stand-alone operation as well as external control

**CHROMATOGRAPHY DATA STATION**

1. Should be compatible with all commercially available GC/HPLC systems.
2. Up-gradable to data acquisition from 4 (or higher) GC/HPLC systems with 2 detector per system.
3. Operating System : Windows 95 or Windows NT.
4. Should provide intelligent interfaces with buffered memory so that data is protected in case the PC hangs.
5. Softwares should provide graphic user interface with mouse driven operation.
6. The user should be able to run other windows applications such as MS Word/ Excel / Powerpoint while acquiring data from the instruments.
7. The software should include system suitability software compatible with USP/BP for analysis of following parameters. Area, Height, Theoretical plates, Tailing factor, Capacity factor, resolution, separation factor, signal to noise ratio and peak width.
8. The Software should provide user defined report formats.
9. The report formats should include custom expression feature for user defined calculations.
10. The software should be ISO-9001 and Tick it certified.

**Column oven:** Should be imported, preferably of same brand. Column oven should be spacious

enough to accommodate more than 5 columns along-with column switching valve with 6 switching positions.

It should have **Safety Cut off Leakage Sensor**

**Operating Range:** 30°C to 90°C

**Temperature Accuracy**  $\pm 1^{\circ}\text{C}$  over entire range\*. Temperature Stability  $\pm 0.2^{\circ}\text{C}$

**Temperature Repeatability**  $\pm 1^{\circ}\text{C}$ . Heating Rate: 30 min to set point at 2mL/min

**Temperature Ramp** Up to 5°C/min

**Stabilizing Time** 30 min after reaching setpoint

**Autosampler Specifications:**

**Injection Range** Programmable from 0.1 – 1.0  $\mu\text{L}$  at 0.1  $\mu\text{L}$  increments, 1  $\mu\text{L}$  to 2.5 mL at 1  $\mu\text{L}$  increments

**Replicate Injections** 1 – 99 from one vial

**Precision** Typically <0.5% RSD of peak areas from 3  $\mu\text{L}$

**Linearity** >0.999

**Minimum Sample Volume** 1  $\mu\text{L}$  in 7  $\mu\text{L}$

**Sample Syringe Sizes** 50, 100, 250, 500, 1000, 2500  $\mu\text{L}$

**Sample Waste** None (or user selectable)

**Carryover** <0.02%

**Flush Cycles** User selectable, 1 – 9

**Flush Volume** 0 – 2500  $\mu\text{L}$

**Sample Capacity** up to 225 vials or two 384 well plates.

**Method Parameters** Injection volume, sample draw speed, flushes volume, flush cycle, 2 external contacts, start and stop time

**Methods** Battery-backed storage of up to 20 methods including time programming.

Editing of stored methods possible during runs.

**Injection Cycle Time** 2 – 3 samples per minute

C8 column for protein purification 150 mm X 3.9 mm X 4  $\mu\text{m}$

**1 No.**

C18 column for protein purification 150 mm X 4.6 mm X 5  $\mu\text{m}$

**1 No.**

Reverse phase column for other molecule, inert octadecyl silane 250 mm X 4.6 mm X 5  $\mu\text{m}$

**1 No.**

## 2 **Bomb calorimeter**

**1 No.**

- Temperature indicator 3.5 digital display.

- Differential temperature range: 0-10 deg c.
- Reading accuracy of temperature: 0.01 deg c.
- Firing voltage: 12 v ac.
- Led indication for filament continuity.
- Led indication for bomb calorimeter combustion.
- Combustion bomb should be fabricated with ss 316 mo.
- Firing unit with electronic timer beep.

**3 Cell sorter**

**1 No.**

**Data Acquisition** 16 bit digital plus error detection and correction, channel ID, and parallel processing **Patented Error**

**Noise Level & Detection Limit** 3 photons

**Sensitivity** Better than 100 MESF

**Data Resolution** 5 Decades

**Light Scatter Detection** Better than 0.5 m

**Forward Scatter Detector** PMT with adjustable obscuration bar

**Number of Gates** 24

**Number of Sort Windows** 24

**Parameters** 41

**Available signals** Log, linear, pulse width, peak height, peak area (integral) for each parameter, time

**Fluorescent Detectors** Up to 12 PMT's

**Collection Optics** 20X Standard, 20X turbo high NA, 10X log depth of focus for wide sample beam.

**Emission Optics** Application configurable

**Compensation** 12 X 12 matrix-intralaser compensation

**Laser Ports** 5

**Laser Options** Coherent 70, 90, 300 series water cooled lasers. Solid state UV 355nm, Violet 408nm, Violet-Blue 479nm

**System Pressure** 0-100 PSI

**Throughput Rates** 200,000 events per second

**Sort Rates** Greater than 50,000 cells per second

**Sort Purity** Greater than 99%

**Sort Yield** 90% of theoretical maximum

**Sorting** Multi-way, index, and proportional sorting

**Nozzle Sizes** 50, 70,100,120, and 150 m—user interchangeable

**Single Cell Deposition** Programmable micro-titer well tray configurations (96 well tray in 45 seconds), user configurable slides.

**4 Ultra sonicator**

**1 No.**

- 100 Watt Average Power (RMS)
- 20 kHz Output Frequency
- 200 Watts (peak power) in Water
- Timer (1-99 minutes)
- Variable Power Level Control
- Hi / low power Selector
- Digital Power readout
- 30 Minute System Duty Cycle
- 230/240 Volts 50/60 Hz AC

**5 Compound student Microscope**

**40 Nos.**

Body: Aluminium die-cast monocular body  
 Inclined Observation Head: 45 degree monocular, rotatable through 360 degrees  
 Eyepiece (widefield) for observation: WF 10X (F.N. 18) paired compensating eyepiece.  
 Provides relief from eye fatigue and renders color-compensated images of utmost clarity.  
 Compatible with an optionally available eyepiece micrometer.  
 Nosepiece: Quadruple revolving nosepiece  
 Objectives: Infinity corrected Achromat objectives 4x, 10x, 40x (spring) & 100x (oil immersion)  
 Mechanical stage: Left hand co-axial double plate mechanical stage, movement 60mm X 25 mm, size 120mm X 120mm  
 Focusing system: Separate fine and coarse focusing adjustment knobs with tension control mechanism  
 illumination :- Tungsten lamp with regulator 20 to 30 Wt/12 V

<b>6</b>	<b><u>Bioreactor</u></b>	<b>1 No</b>
	Microbial packages Cell culture packages	
v	Culture vessel 5 L	
v	<b>Culture Vessel</b>	
v	Total volume [L] 6.6	
v	Working volume [L] 0.4–5	
v	Culture vessel tripod	
v	Stirrer shaft with sealing	
v	6-blade disk impeller (Rushton impeller) 2	
v	3-blade pitched impeller (Marine type) 1	
v	Agitation [rpm] 20–1200	
v	Baffle cage	
v	Storage bottle 250 mL 3	
v	Storage bottle 500 mL 2	
v	Bottle rack	
v	Air inlet and exhaust filter 3	
v	Aeration tube with ring-sparger	
v	Aeration tube with $\mu$ -sparger	
v	Inoculation port	
v	Exhaust cooler	
v	4-Way addition fitting	
v	Fitting for overlay aeration	
v	Sample Harvest pipe	
v	Manual sampler	
v	Cooling finger	
v	Heating blanket	
v	pH Electrode, cable	
v	DO Electrode, cable	
v	Temperature sensor with pocket	
v	Foam  Level probe, cable	
v	Spare parts kit	
v	<b>Basic unit</b>	
v	Digital controller	
v	Control capabilities for temperature, pH,	
v	DO (2 stage cascade), stirrer speed, combined	
v	Level   Foam controller, substrate*	
v	Rotameter for Air [l/min] 1.3–13	

- v O2 Enrichment
- v Gassing with individual gas flow path, control valve
- v and Rotameter; N2 without automatic control valve
- v Air & N2 [ml/min] 50–500. v O2 & CO2 [ml/min] 33–333
- v Peristaltic pumps (integrated) 3
- v Balance for weight measurement of culture vessel
- v Tubing, O-Ring spare set
- v SCADA Software MFCS/DA
- v Including all the accessory required to run the instruments.

7 <b><u>Rotary incubator shaker</u></b>	<b>1 No.</b>
2/4 stacks; temperature range ambient +5°C to 60°C with accuracy of 0.1°C; Stainless steel inner and outer powdered coated; humidity range 30% to 98% RH with ±1% uniformity; illumination range 0 to 20000 lux; shaking rpm 0 to 400 rpm; shaker drive: triple eccentric counter balance drive with microprocessor based programmer; 24 adjustable flask holders in each stack.	

## **Chemistry** (Sr. No. 8 to 14)

8 <b><u>HPLC</u></b>	<b>1 No.</b>
<b><u>PUMP</u></b> Pump should be Quaternary gradient Flow rate : 0.01 ml -10 ml/min. Max. Pressure : 6200 psi for entire flow rate range i.e. up to 10ml/min. Operation : Stand-alone operation as well as external control. Method Storage : At least 15 method storage with 15 methods per method. Upper and lower pressure limit user settable.  Automated volume compensation on solvent expansion or contraction on mixing in gradient operation. Automated compressibility correction Diagnostics : Extensive instrument diagnostics should be available.	

**DIODE ARRAY DETECTOR:**  
Single-beam, single-array optical design,  
Wavelength range: 190 to 700 nm  
Simultaneous deuterium and tungsten sources.  
Wavelength setability: 1 nm. Slit width: 4nm.  
Sensitivity ranges -0.005 to 1.5000 AU full-scale.  
Noise: <±1.5 x 10<sup>-5</sup> AU Peak-to-peak;  
drift: <1x10<sup>-3</sup>AU/h. Standard flow cell (12-µL, 10-mm path length, stainless steel);  
Timed mode spectral collection. Features built-in Integral LINK card – eliminating the need for an external LINK interface. Unit can be connected directly to Ethernet network port without any additional hardware. Also include required detector to Integral LINK communication cable.  
Unit controllable only by Workstation and Client / Server SOFTWARE The System should be provided with method development software.

### **CHROMATOGRAPHY DATA STATION**

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2. Up-gradable to data acquisition from 4 (or higher) GC/HPLC systems with 2 detector per system.
3. Operating System : Windows 95 or Windows NT.
4. Should provide intelligent interfaces with buffered memory so that data is protected in case the PC hangs.
5. Softwares should provide graphic user interface with mouse driven operation.
6. The user should be able to run other windows applications such as MS Word/Excel/Powerpoint while acquiring data from the instruments.
7. The software should include system suitability software compatible with USP/BP for analysis of following parameters.  
Area, Height, Theoretical plates, Tailing factor, Capacity factor, resolution, separation factor, signal to noise ratio and peak width.
8. The Software should provide user defined report formats.
9. The report formats should include custom expression feature for user defined calculations.
10. The software should be ISO-9001 and Tick it certified.

**Column oven:** Should be imported, preferably of same brand

Column oven should be spacious enough to accommodate more than 5 columns along-with column switching valve with 6 switching positions

It should have **Safety Cutoff Leakage Sensor**

**Operating Range:** 30°C to 90°C

**Temperature Accuracy**  $\pm 1^{\circ}\text{C}$  over entire range\*

**Temperature Stability**  $\pm 0.2^{\circ}\text{C}$

**Temperature Repeatability**  $\pm 1^{\circ}\text{C}$

**Heating Rate:** 30 min to setpoint at 2mL/min

**Temperature Ramp** Up to 5°C/min

**Stabilizing Time** 30 min after reaching setpoint

**Sampling System**

**Manual injection** - 0.1 – 1.0  $\mu\text{L}$ , 1  $\mu\text{L}$  to 2.5 mL

**Precision** Typically <0.5% RSD of peak areas from 3  $\mu\text{L}$

**Sample Syringe Sizes** 50, 100, 250, 500, 1000, 2500  $\mu\text{L}$

<p><b>9    <u>Scientific Microwave Synthesis System (Microwave Oven)</u></b></p>	<p><b>1 No.</b></p>
<p>a) Capacity – 31 Liter</p>	
<p>b) Power out put – 700W (2450MHz)</p>	
<p>c) Power Levels - 10 ( 140W to 700W ). Fully automatic</p>	
<p>d) Beam reflector instead turntable for perfect distribution of microwaves and usage of optimum process place utilization.</p>	
<p>e) One magnetic stirrer with 1200 rpm</p>	
<p>f) One spiral Reflux Condenser with 3 neck 250mL flask</p>	
<p>g) Temperature meter with flexible probe</p>	
<p>h) Powerful Exhaust System</p>	
<p>i) Additional one Magnetic Stirrer</p>	
<p>j) Additional one Spiral Reflux Condenser</p>	

<p><b>10    <u>Rota Evaporator</u></b></p>	<p><b>1 No.</b></p>
<p>a) Motorized lift along with manual lift in case of power failure- available as standard</p>	

- b) Digital RPM, Rotation speed :- 30-270rpm
- c) Digital water cum oil Bath : Temp range ambient + 5°C to 180°C
- d) Vertical glass set consisting of :
  - Flask Adapter
  - Pear shape Evaporating Flask Capacity- 1 Liter.
  - Round Bottom receiver Flask Capacity-1 Liter.
  - Vertical Condenser
  - Feed tube
  - Min/Max Flasks Size : 50 mL / 3000mL

**Optional Accessories :**

- Vacuum Controller –Digital
- Optional vapor sensor with Digital Indicator

**11 Double Distillation Unit :** 1 No.

- a) Made up of Quartz
- b) Output capacity : 2.5 Ltrs/Hr
- c) Power required : 220-240V 4.5 kw single phase
- d) Cooling water feed 70Ltr/hr
- e) Biological purity : Pyrogen Free
- f) RH/PH : 6.9 -7.0
- g) Conductivity : -0.5-9.0x10-6 S
- h ) Distillate temperature : 75 ± 50C

**12 Furnace (High Temperature)** 1 No.

- a) Rectangular in shape
- b) fully automatic microprocessor based PID temperature controller
- c) Temperature Preset facility
- d) Power supply 440V, 3 phase
- e) Chamber dimension 6"x6"x12"
- f) Maximum attainable temperature 1400-1600°C

**13 Voltametric System** 1 No.

**Configuration**

Cell Connections :- 2, 3 or 4 terminal plus ground

**Data acquisition**

Data acquisition:- 3x16 – bit 500K samples per second ADCs synchronized –voltage/current/auxiliary  
 Time base resolution :- 10µs (100K samples/second)

Automatic noise filters:- Enabled/disabled

**Power amplifier (CE)**

Voltage: ±12V

Current compliance :- ±650mA (Standard) ±2A (with 2A option)

Potentiostat bandwith – 1MHz

Stability settings :- high- speed, high-stability

Slew rate - ≥8V per µs typical (no load)

Rise time (- 1.0 to +1.0V) :- < 350ns (no load)

**Voltage control (potentiostat mode)**

Applied voltage range :-  $\pm 10V$

Applied voltage resolution :- for  $\pm 10mV$  signal =  $300nV$

for  $\pm 100mV$  signal =  $3\mu V$

for  $\pm 1V$  signal =  $30\mu V$

for  $\pm 10V$  signal =  $300\mu V$

Applied voltage accuracy :-  $\pm 0.2\%$  of value  $\pm 2mV$

Maximum scan rate :- 5000Vs -1 (50mV step)

Maximum scan range/resolution :-  $\pm 10V / 300\mu V$

#### **Current control (galvanostat mode)**

Applied current range :-  $\pm$  Full scale(depends on range selected)  
 $\pm 650mA$  (standard) ,  $\pm 2A$  (with option)

Applied current resolution :-  $\pm 1/32000 \times$  full scale

Applied current accuracy :-  $\pm 0.2\%$  of value  $\pm 2mV$

Maximum current range/resolution :-  $\pm 650mA / 60\mu A$

Minimum current range/resolution :-  $\pm 200nA / 6pA$

#### **Electrometer**

Max input range :-  $\pm 10V$

Bandwidth :-  $\geq 10MHz$ (3dB)

Input impedance :-  $\geq 1012\Omega$  in parallel with  $\leq 5pF$  (typical)

Leakage current :-  $\leq 5pA$  at less than  $25^0C$

CMRR :- 60dB at 100KHz (typical)

#### **Voltage measurement**

Voltage range :-  $\pm 10V$

Voltage resolution :-  $6\mu V$

Voltage accuracy :-  $\pm 0.2\%$  of reading,  $\pm 0.2$  of range

#### **Current measurement**

Current ranges :- Auto -ranging (8 ranges)  
 $650mA$  to  $200nA$  (8 ranges)  
 $2A$  to  $200nA$  (with option)

Current resolution :-  $120fA$

Current accuracy(DC) :-  $\pm 0.2\%$  of reading,  $\pm 0.2$  of range

Bandwidth :- 1MHz (Signal  $\geq 2mA$  range typical)

Bandwidth limit filter :- Yes

#### **IR compensation**

Positive feedback :- Yes

Dynamic IR :- Yes

#### **Impedance (EIS)**

Mode :- Potentiostatic/ Galvanostatic

Frequency range :-  $10\mu Hz$  to  $1MHz$

Minimum AC voltage amplitude :-  $0.1mV$  RMS

Sweep :- Linear or Logarithmic

#### **Interfaces (Included as standard)**

Digital inputs/outputs :- 5TTL logic outputs, 2TTL logic inputs

Auxiliary voltage input :- measurement synchronized to V and I  $\pm 10V$  range, input impedance  $10K\Omega$  ; ,

Filter : off, 1KHz, 200KHz , BNC Connector

DAC voltage output (standard) :-  $\pm 10V$  range, output impedance  $1K\Omega$  ; BNC Connector

(for stirrer, rotating disk electrode etc.)

#### **Software**

V3 Studio- compatible with Pentium 4

**General**

Power :- 250VA Max.

Voltage range 90Vac, 50-60Hz

Dimensions :- 16 1/4" X 15 1/4" x 3 1/2" 421x 387 x 89 mm

Weight:- ~ 4 to 5kg

Operating temperature range :- 10 to 50°C

Humidity :- Maximum 80% non condensing

Temperature (specified) :- 25°C

Dummy Cell :- internal (DC only). CE approved :- Yes

**Operational modes required**

Open circuit, LSV, CV(Single and multiple scans), LSV-Stair Case, Chronopotentiometry, Chronoamperometry, Chronocoulometry, Square wave voltammetry, normal and differential pulse voltammetry, reverse scan normal pulse voltammetry Galvanic corrosion, Polarisation linear and cyclic, potentiostatic and galvanostatic impedance measurement.

**14 Vacuum Pump**

**6 Nos.**

Number of stages : 2  
Displacement 50Hz : 14.3 m3h-1  
Speed 50 Hz : 12.0 m3-1

**Ultimate Vacuum**

Without gas ballast(partial press.) : 7 x 10-4mbar  
Without gas ballast(Total press.) : 5 x 10-3mbar  
With gas ballast(partial press.) : 1 x 10-2mbar  
Water vapour tolerance : 15mbar  
Water vapour capacity : 150gh-1  
Oil capacity max. : 770 mL  
Oil capacity min. : 560 mL  
Inlet connection KF : 25NW  
Outlet connection nozzle (ext, dia) : 15 mm  
Motor power(s. ph) : 370W  
Weight : 30-35 kg  
Dimensions (LxWxH) : 55x19x27

**BIOCHEMISTRY.**

(Sr. No. 15 to 21)

**15 Electronic Balance :-**

**3 Nos**

Capacity 200 gm. Max. 0.01 mg Min. Digital Display, Compact body, Pansize 80 mm diameter.

Main 230 VAC operated.

**16 PH Meter:-**

**2 Nos.**

LCD Display, Range ; 0- 14ph + 0.01 PH Gelfilled electrode, PH & MV

**17 Water Purification System.**

**1 No.**

Water grade of electrical conductivity 18.2 M Ohms/cm at 25 C, water quality must comply with ASTM, CAP, ACS and NCCLS to be used with HPLC, GC, MS/IC,AAS,ICP Measuring the resistivity by atomic Temperature Compensation for accurate measurements, UF filter- for

removal of the bacteria (Bacteria efu/ml<1) and impurities to reduce Pyrogen to 0.06 tulml, UV filter-for low TOC value < 5ppb 0.2 um final filter for removing impurities of produced wated and prevention of contamination at drain, Flow rate (Max) 1.5 L/Min Replaceable filters. One touch chip to prevent leakage Main operated, Analog Display. Online UV absorbance 254 nm. UF membrame 10000 NMWL Organic Analysis, Cell & Tissue Culture, in vitro-fertilisation, Electrophoresis/PCR,DNA sequencing & Molacular Biology.

18	<b>Fermentor.</b>	1 No.
	The Fermentor/ Bioreactor shluld be modular and upgradable.	
	FULLY AUTOMATED FERMENTOR (5 liter capacity working volume)	
	The contoller should control upto four vessel in Fermentation as well as Cell Culture mode simultaneously in any permutation or combination.	
	The system should automatically sense the attached loops.	
	Four Gas mixture/ Gas mix Controller should be quoted as optional.	
	The primary control unit should come with a big bright display which should show graphs Actual and Set parameters. (4 Moving windows of Ph, Agitation, Temparature ,Stiring.	
	Removable plug at the end of the sparge ring facilitates clearing.	
	Oring at the bottom-- not on the top---of each port prevent the contamination from reaching the culture. Heat should be provided via a heater bkabjet which surrounds the vessel providing uniform heat through out the culture. Extra conventional water jacketed vessels.	
	Heater blanket with two large cut outs and a reflective white inner surface made to view the culture.	
	slip on motor self align the drive shaft. No pre algnment needed.	
	Dished bottom vessels should have no mixing dead zones, even at low agitation speed.	
	PH and DO probes should be adjusted to any immersion length.	
	Controller should change from " Fermentation" to "Cell culture" mode with a single touch scrin display foam trap should keep the exhaust filter dry and free flowing.	
	User should select P-I-D or values for PH and Dissolved oxygen.	
	Built-in floppy.	
	Communications : Serial port wutg AFS and Modbus protocols. 4- channels 0-2.5 % DC output for recorder.	
	High power stirring system and wide speed ranges to suit diverse applications.	
	Range : 0-100 % Agitation or oxygen enrichment cascade.	
	Sparge on demand	
	Long stainless steel exhaust air condesor to eliminate loss of media due to evaporation and to protect the air filter.	
	Four pump model. Individual configurable to Ph, antifoam, level or substrate controller depending on the application to suit batch, fed batch and continuous fermentation.	
	Comprehensive control capabilities covering temperature, stirrer speed, PH po2 antifoam, level (feed/ harvest) and substrate (for internal and external feed pump). Highly reliable in gold PH and po2 electrodes.	
	Extensive po2 cascade control function for stirrer speed, aeration rate, gas mix and substrate feed.	
	Thermostat system : Fermentation temperature ranges from 8 c above cooling water to 70 C	
	Fermentor should have insitu sterilization of vesels and pipings.	
	Agitation System : 50- 1200 rpm	
	Aeration system : Adjustable range from 1 VVM	
	Dosing system : 4 programmable peristaltic pump.	
	Culture vessel : Jacketed glass vessel with ss top plate. The stirrer shaft should be equipped with rushton.	

impellers. The stirrer shaft should be sealed with a carbon. Ceramic Seal and A removable baffle cage.

Other accessories : One Pt 100 temperature sensor. One ingold PH.

electrode. One ingold PO2 electrode, one foam sensor, One level sensor, inlet & exhaust filters, 3

storage bottles and its holders, One ring sparger one sampling system and one exhaust cooler. Working volumne upto 5.5ltrs.

Control unit digital measurement and control system with integrated measurement amplifiers and actuators control, housed in a splash proof housing.

spare part kit, autoclave chiller.

## **19 ULTRASONICATOR**

**1 No.**

1. Basic equipment comprising of generator, ultrasonic converter, horn, tips/ probes power cables.
2. Output frequency 20 KHz (minimum or higher)
3. Electronic control of the ultrasonic generator
4. Continuous processor or on/off pulsing
5. Adjustable pulse duration (on & off time) ranging from 1 sec to at least 1 hr (min. or higher)
6. Temperature monitoring to prevent overheating of the specimen
7. Duty cycle : 10-90%
8. Programmable timer
9. Volume of 5 to 900 ml
10. Power output 200 W (minimum or higher)
11. Automatic tuning
12. Soundproof chamber
13. Different sizes of probes / microtips to sonicate minimum volume of 50 ml & maximum upto  
250-300 ml (2 or 3 nos. depending upon volume of the probes.)
14. Input 220- 240 V.

## **20 HPLC System.**

**1 No.**

HPLC System – Quaternary system with UV Detector

Modular and upgradable Quaternary HPLC system for analytical purpose, which should be able to use as semi-prep in future, should be able to couple with any HPLC detector, including MS.

The High pressure HPLC system should be fully computer controlled and also must be able to control through the individual key pad available with each module. The system should be able to couple with any types of Detectors and also should be able to upgrade in future to LC-GC and LC-GC-MS; where the HPLC will beconnected directly to the GC and GCMS and can be used all modules separately as and when required. And then also can be used as LC-MC.

### **Pump:**

Double piston pump (one working and one auxiliary), with electronic residual pulsation absorption.

The pump head should be of 10ml and should be able to upgrade with 50ml pump head and so can be used as analytical and Semi-prep system as and when required. Flow range should be up to 10ml/min with minimum 0.001 ml/min flow rate and withsemi-prep option should be up to 50ml/min with minimum 0.0aml/min flow rate. Flow rate accuracy: deviation  $\leq$ 0.5%

measured at 1 ml/min. Flow RSD:  $\leq 0.1\%$ , measured at 1 ml/min should have programming capacity through key pad of 20 programs and 10 links, along with one wake up program.

The pump should be able to handle up to four mobile phase at a time.

Vacuum degasser should be quoted along with system controller.

The system should have control from touch pad, RS-232, remote control strip as well as through the software.

The Semi-prep module must be quoted in option.

#### **UVD:**

The UV detector must be multiwavelength based on Diode Array Technology. Should be able to measure up to 4 freely programmable detection channels with sensitive record spectra simultaneously.

Wavelength range: 190 to 500nm, with  $\pm 1\text{nm}$  accuracy

Spectra scan: 10 scans per second. Number of Diodes: 256 (1.25nm/diode)

Deuterium lamp should be standard

Bandwidth: 4 – 25nm (selectable)

Noise level (ASTM E1657-94):  $< 1 \times 10^{-5}$  AU

Should have analogue output so that can be connected with any HPLC pump and can be used as stand-alone mode

Should have LCD display of 2 lines, 24 characters in each line

In-built method storage capacity: 20 nos

The detector should be able to operate through touch pad of the system and also through the software.

#### **Software:**

Should 21CFR Part 11 comply. User friendly. Should be able to control the full system and also can do the data acquisition. The detector output should be able to give to the GC through the interface to use as LC-GC and LC-GC-MS mode in future C18 column of 250mm, 5 micron should be quoted with the system. All the required accessories to install the system should be quoted, including rheodyne injector, solvent bottle and solvent tray, etc.

Column oven:

The column oven should be able to accommodate at least 4 columns. Should have provision to switch over the column automatically (quoted in option).

Temperature range should be up to  $80^{\circ}\text{C}$ .

Ejector should be able to give 2D and 3D plots

#### **21 Ultracentrifuge**

**1 No.**

Speed control + 20 rpm of set speed.

Sample imbalance tolerance :- up to 10 % of volume in opposite tubes.

Drive cooling :- Aircooled.

Refrigeration system :- Thermo electric

Set temperature range :- 0 C TO 40 C in 1 C increments.

Temperature control :- 0.5 C of set 15 C to 40 C

Ambient operating range :- 15 C to 40 C

User-settable programs :- 9 user programs with delayed start capability.

Acceleration/Deceleration rates :- 2 Accel/ 3 Decel Yes

Moisture-purging vacuum system :- Yes

Heat output :- 1.0 kW/h (3400 BTU/h)

Sound level 3 ft (0.9 m) away :- 57 dBA

Dimensions H x W x D in (mm) :- 47.5 x 37 x 26.5 (1207 x 940 x 673)

Weight :- 1025lb (465 kg)

Maximum Speed of 80,000 rpm (rotor dependent)  
Maximum Force of 602,000 x g (rotor dependent)  
Speed range of 100 to 80,000 rpm  
+/- 0.5% speed control  
High Torque direct brushless drive  
Timer 0 to 99 hours, 59 minutes or hold  
Auto imbalance detection

## MICROBIOLOGY.

(Sr.No. 22 to 33)

22 **Rotary Vacuum Pump.** 1 No.  
Displacement 50 ltrs/ min ultimate vaccum 6.7 x 10 Pa, Motor output 200 W, Safety function.  
Thermal projector check valve oil filter. Oil requirement 500-800 ml suction nozzle O.D. 18 mm  
Ambient temp for operation-7-40°C. overall Dimension 165 w x 400 D x 246.7 H, wt-13.7 kg power  
power required AC 100v 50 Hz

23 **Microwave oven** 2 Nos

30 ltr. Capacity with grill Convention 1 multi cook tawa, pushdoortype, stainless steel Interior, Largest Turntable Auto d

24 **Orbital shaker** 1 No  
Bench top Incubator shaker :- 25 mm without cooling with base for stacking/ double  
stacked unit  
Shaker speed range 20-400 RPM . 25 MM, Accuracy :- 1 1 % of max speed.  
Temperature range with cooling :- Approx 15°C under RT to 60° C Accuracy (at the pt-  
100)±0.2°C. Air Circulation :- Approx 100 cubic meter per hours.  
wt. without cooling- Approx 75 kg. Interface RS 232, bidirectional power : 230 v 50 Hz.  
Sticky mat/ Tray- 480 x 420 mm

25 **UV- Visible Spectrophotometer.** 2 No

Spectral Bandwidth-Better than 1 nm (190 to 900 nm) wave length range 190.0 to 1100.0 nm  
wavelength display 0.1 nm increments wave length setting-0.1nm increments ( 1 nm increments when  
when setting scan range) wavelength accuracy ±0.3 nm, wavelength repeatability + 0.1 nm  
photometric range

Absorbance : 0.5 - 3.0 Abs, Transmittance : 00 - 300%, Photometric accuracy + 0.004 Abs at  
1.0 Abs tested with NIST 930 D filter, + 0.0002 Abs at 0.5 Abs

Photometric Repeatability :- + 0.001 Abs at 0.5 Abs + 0.002 Abs at 1.0 Abs.

Photometric system- Double beam optics.

Base line stability :- 0.001 Abs/h max (700 nm after 1hr from power on) Base line Flatness ±  
0.001 Abs(1100 mm to 200 mm) after 1 hr from power on.

Noise level :- 0.002 Abs (P.P.) 0.0002 A (RMS)(700 nm)

Baseline correction :- Automatic with Computer memory in two stages of coarse & fine.

Light Source :- 20 W halogen lamp, deuterium light source automatic position adjustment.

Monochromator :- Aberration - corrected blazed holographic grating.

Detector :- Silicon photodiode.

Power requirement 220, 240 VAC 50/60 Hr 130 VA Ambient requirement Temp. 15° to 35°c

Humidity- 35 to 80 %

Dimension 550 w x 470 D x 200 H (mm) max hight 380 mm weight 17 kg.

**26 Automatic Autoclave** 1 No

Fully automatic, Vertical Autoclave working chamber size- 35 Ltr. PSI 15. Micro Processor based controller with time and temp programable by user. A backlit alphanumeric two line 32 characters LCD display- Operating & Display range up to 122°C in 0.1°C steps.

Flexible pt 100 sensor, enabling precise in load monitoring. Low water level alarm and cut off seneor fault detect, empty boil protection with float, watch dog timer. Breaker for electrical leakage & open alarm, End of cycle buzzer and auto reset. Miniature circuit braker for ON/OFF pus safety. Solenoid Valve for automatic purging & exhaust industrial grade energy efficient ring type heater. Lid is fitted with pressure guage, safety valve extra safety valve, manual exhaust valve, Vacuum breaker cum purge valve & quick release coupling for online pressure culibrantion checks drain valve facilities easy cleaning, moulded rubber gasket stainlers steel carrier(s) along with heater cover stand

**27 Bench top Incubator shaker** 2 Nos

25 mm without cooling with base for stacking / double stackedunit Shaker speed range 20-400 RPM 25 MM, Accuracy :- I 1 % of max speed. Temperature range with cooling :- Approx 15 C under RT to 60 C Accur Approx 15° C under RT to 60° C Accuracy (at the pt-100) +0.2 Air Circulation :- Approx 100 cubic meter per hours. wt. without cooling- Approx 75 kg. Interface RS 232, bidirectional power : 230 v 50 Hz. Sticky mat/ Tray- 480 x 420 mm

**28 Sonicator** 1 No

Ultrasonic processor for bacterial cell disruption- Complete unit power output-250 watts volume 20 micro ltr to 200 ml. Frequency- 20 KHz Timer- 1 second upto 10- Additional Facilities sachs. converter standard probe & range necessary electrical requirments, sound abating enclosure microprocessor based & programmable, energy monitor Automatic amplitude compensation automatic tuning & Frequency control, Variable power output control etc. Documenting Facility to external printer (80/132 column dotmatrix printer) from controller of temperature with Fo & pressure.

**29 Termostatic waterbath with window.** 1 No

Temp control range = RT + 5° C- 80° C ( 10 ~RT + 5° C with cooling unit) Temp control accuracy= ± 0.03° C Temp control = P.I.D. Micro processor Control, Trial Zero Cross output. Temp setting display= membrave key switch, digital display min fig 0.1 C Safety features :- Self diagnostic function (Upper- lower limit)- temp. fault detect. Heater fault detect. seneor fault detect, empty boil protection with float, watch dog timer. Breaker for electrical leakage & exces current independent over heat protector. Standard Function- Autotuning function Main heater- 1.3 KW(SUS 316 lt.) bath stirring pump (Water)- water jet. Max discharge (50/60 hz.)- 11/12 Ltr.min Max head (50/60 ltr)- 1.5/ 2.1 m

Temp sensor- pt 100  
 Observation window- Glass, Front/ back.  
 window dimension-240W x 215 H  
 Bath material- SUS 304  
 Capacity :- 22.5 lit Approx  
 Operable Abient temp- 5- 35° c  
 Overall dimension (mm) 49000 x 310 D x 480 H Approx wt. Approx 20 kg.  
 Power consumption- 15 A, 1.5 KVA  
 Power source- AC 230 V 50/60 HZ  
 Standard Accessories- Shelf, Stand, Clamp I PC each clamp holder 2 pc.

**30 Muffle Furnace / Electric Furnace.** 1 No

Temp control range- 200 C to 1150 C  
 Temp control accuracy-  $\pm$  1.5 C  
 Working temp.- 1150° C  
 Heating time- 30 min  
 Temp control- Microprocessor based PID (with Auto tuning).  
 Safety function- Self diagnosis, power breaker, Indpendent over heat protection.  
 Heater- 2.4 KW  
 Cooling Fan- Axial Fan for cooling exterior, Sirocco fan for ventilating interior.  
 Temp Sensor- R Thermo couple.  
 Furnace dimension (mm) 200 w x 250 D x 150H/ 7.5 lit (Approx)  
 Interior material- Ceramic Fibre.  
 Ventilating orifice- D 20 mm  
 Ambient temp for use- 5 - 35° C  
 wt- 45 kg Approx.  
 Power consumptioin-15 A, 1.5 KVA. 230 V, 50/60Hz  
 Standard Accessories :- Shelf, Stand, Clamp 1 pc., clamp holder 2 pc.

**31 BOD Incubator :-** 1 No

Programmable PID controller provding precise control silent Fan Motor & Automatic defrost system.  
 Back light LCD display showing set & actual values . Inner Tempered Glass Door.  
 Safety and Convenience features.  
 Dimension-Inner 500 x 500 x 600 Outer 665 x 840 x 1360 mm  
 Compressor :- 1/3 HP.  
 Temperature Range :- 0° C to 60° C  
 Temperature Accuracy  $\pm$  0.1° C at 20° C.  
 Temperature uniformity :-  $\pm$  0.5° C at 20° C.  
 Display :- LCD Back light PV & SV display for programmable PID.  
 Timer :- 99- hr. 59 min/ contionous.  
 Material Inner :- Stainless steel. Outer :- Powder coated steel.  
 Door :- Inner :- Tempered Safety Glass. Outer :- Silicon Packing Magnetic Door.  
 Shelves :- 3 shelves.  
 Safety :- Over and Under temperature cut off, Over current brekar.  
 Capacity :- 150 ltrs.  
 Operates on :- 220 V 50Hz.

**32 Digital Balance. :-** 2 Nos

1) Flutomatic Calibration with build in weights.

2) Easy to read display.  
 3) High Resolution accuracy.  
 Capacity max 300 gm  
 Readability- 0.0001 gm (least count)  
 Pan size 90 mm  
 Dimensions :- 195 x 411 x 266 mm @

<b>33</b>	<b><u>Benchtop high speed Refrigerated Centrifuge :-</u></b>	<b>1 No</b>
	Max speed :- 14000 to 20000 rpm	
	Max RCF :- 36000x g	
	Max capacity 6 x 100 ml	
	speed :- 500 to 20000 rpm	
	Step 1 rpm.	
	Accyracy $\pm$ 10 rpm low speed., $\pm$ 20 rpm high speed.	
	Intergrated :- Range 100 to 281 x $10^12$ m.r.d2.s. Step 1 min. Accuracy $\pm$ 1 m.rx s	
	Range :- 20 to 36668 x g, Step 1 x g at low speed, 3 x g att Max speed. Accuracy $\pm$ 1 x g at low speed 3 x g max speed.	
	Acceleration/ braking :- 10/10 rates. Temp. :- Range -8 °C to 40° C, Step :- 1° C.	

## **PHYSICS** (Sr.No. 34 to 40)

<b>34</b>	<b><u>Vacuum Coating System</u></b>	<b>1 No</b>
	Vacuum coating unit with following specifications	
	<ul style="list-style-type: none"> <li>· Vacuum chamber (box type)</li> <li>· 3 sets for central evaporation source holder</li> <li>· L.T. evaporation</li> <li>· Circular work holder</li> <li>· Operation on single phase power supply</li> <li>· Vacuum pumping system (Rotary vacuum pump)</li> <li>· With cryo trap</li> <li>· Vacuum measuring gauges (pirani and penning)</li> <li>· safety devices</li> <li>· Water cooling channels for vacuum chamber</li> <li>· Quartz film thickness monitor</li> <li>· Radiant heater</li> <li>· Optional accessories viz. electron beam gun with power supply and ion cleaning.</li> </ul>	
<b>35</b>	<b><u>Potentiostat / Galvanostat</u></b>	<b>1 No</b>
	<ul style="list-style-type: none"> <li>· Capable of performing two, three and four electrode measurements</li> <li>· with a DC voltage scan of 20V (-10V to + 10 V)</li> <li>· with necessary software</li> <li>· built in frequency response analyzer (optional)</li> <li>· high current options</li> <li>· with reference and counter electrode.</li> </ul>	
<b>36</b>	<b><u>Microbalance</u></b>	<b>2</b>
	Capacity - 0.81 g Readability 0.0001mg Repeatability (milligrams) 0.02/0.1 Linearity (milligrams) $\pm$ 0.03/0.2 Stabilization Time 12/5 seconds	

<b>37</b>	<b>Single Crystal Growth System</b>	<b>1No</b>
	The system shall include (at a minimum) the following major components:	
1)	A resistive element furnace capable of operating up to a maximum of 2200 °C	
2)	An atmosphere control system with both positive pressure and high vacuum crystal growth environment capabilities	
3)	A crystal translation system, including a sample draw mechanism with linear travel readout	
4)	A water cooling system	
5)	Computer hardware and software for automated monitoring of the crystal growth of time-stamped sample processing conditions. This will include a programmable controller and/or computer control for gas and vacuum systems, temperature control, and draw mechanism.	
6)	Complete setup for crystal growth by pulling method	
<b>38</b>	<b><u>Microwave oven</u></b>	<b>1 No</b>
	With ultra thermostat (with external circulation type)	
<b>39</b>	<b>Hydraulic press machine with die and plunger of 1cm diameter and 5 to 10 ton pressure (Table model) and additional 5 liter hydraulic oil.</b>	<b>1 No</b>
<b>40</b>	<b>Embedded trainer kit for PIC with following Interfacing Kits</b>	<b>1Set each</b>
	.CPU: Microchip PIC 16F877A	
	.On-Board ISP(in system Programming facility)	
	User's Manual wih Sample Programs.	
	Interfacing Module for PIC E89-04 & VHDL Kit	
	Relay& Opto module	
	Stepper Motor card with Motor	
	Digital to Analog Coverter Card	
	Analog to Digital Converter Card	
	DC Motor Interfacing Kit	
	LED Display Interfacing Kit	
	Solenoid Coil Interfacing Kit	
	Beep Generation Interfacing Kit	
	Realy & Latch Interfacing Kit	
	Shift Register Interfacing Kit	
	Multiplexing Seven Segment Display LCD Interfacing Kit	
	Push Button operation Kit	
	DB-25 Cable(Male-Female Connector)	
	Two 9 pin D-type RS-232 ports for serial communication, two 25 pin D-type LPT ports for parallel communication, ASCII code identification provided on LED with other optional accessories.	

## ZOOLOGY.

(Sr. No. 41)

### 41 Laser Scanning Confocal Microscope System

1 No

Specifications for Laser Scanning Confocal Microscope System.

The laser scanning confocal should be capable of imaging of fixed specimens as well as observation of live cells.

#### **A. Microscope**

An upright Fluorescence Microscope having the following features.

1. There should be a motorization of the Z-drive with a step size of 25 nm or smaller.
2. Microscope should be capable of brightfield and fluorescence imaging.
3. It should be provided with the following semi-apochromat objectives, 10 X with NA of at least 0.3, 40 X with NA of at least 0.75 A plan Apochromat objective 60/63 X NA 1.4 and 100 x objective should also be provided.
4. It should be provided with filter blocks for the imaging of samples with FITC/GPF and Taxas Red.
5. An anti-vibration platform should be provided.

#### **B. Scanning and detection system**

1. System should have at least 2 PMT detectors/ channels for the simultaneous confocal detection of 2 fluorescence/ reflection signals. System should not have any spectral dispersion element that will result in signal loss.
2. Fluorescence detectors should be present inside the scan head/module for maximum signal collection and sensitivity and fluorescence should be delivered to the detectors directly.
3. The system should be provided with at least pinholes of 5 different sizes for the confocal collection of fluorescence signals
4. System should be provided with a transmission light detector for generating transmitted images in bright field mode.
5. The system should be capable of a resolution of at least 2000 x 2000 pixels. It should be capable of a scan speed of at least 4 frames per second at a frame size of 512 x 12. The scanned optical zoom should be at least 10X.
6. Laser scanning should be having a high degree of flexibility. It should be able to scan lines of all geometries, including free line scan.
7. The system should be able to carry out sequential scanning to prevent fluorescence cross talk.
8. The field number (FN/FOV) of the scanned field should be at least 18 when scanning with the required laser for the system.

#### **C. Laser systems and control**

1. The system should be provided with a Helium Neon laser emitting at 543 nm with the possibility of upgradation with another Argon laser emitting at 488 nm
2. It should be possible to modulate the intensity of each laser, in a range from 0 to 100 percent with a step size of 1 percent.

#### **D. System control and software**

1. The latest possible computer configuration should be provided that is optimal with the imaging system.  
Computer workstation should be provided with two 19" LCD/TFT monitors
2. Software should be provided to control all parameters of image acquisition

including laser scanning and detection. It should be able to control to the system acquire multi- dimensional images in different combinations of dimensions of X, Y, Z and T, including free line, free line-t, free line- z.

3. Besides the system should be able to process and analyse images and carry out operations like, intensity measurements in an area and measurements of perimeter.
4. Software should be able to carry out 3D reconstruction and 3D animations.

**NOTE :- PLEASE SEE THE TERMS & CONDITIONS ON THE PAGE NO. 19.**

#### **TERMS AND CONDITIONS.**

- 1) Rates and Taxes        :- F.O.R. Destination (at Institute of Science, Mumbai), all inclusive.
- 2) Inspection            :- Inspections by the Indentor/ Consignee.
- 3) Delivery period        :- Within 2 months from the date of receipt of A/T
- 4) Payment condition    :- 90 % payment will be made by the Indentor within 30 days from date of receipt of material in good and acceptable conditions. 10 % balance payment after 30 days from date of receipt of material in good and acceptable condition.
- 5) Pamphlets and Leaflet    :- Adequate literature, Leaflets and Drawings etc. to be supplied in

in the Technical Tender Envelope.

6) Marketing the :- List of Government and Semi Government Organisation to whom the product is marketed.

7) Octroi Exemption Certificate :- Necessary Octroi exemption certificate will be issued by the Indentor.

8) Tenderer should clearly mentioned in technical envelope the items for which the rate is quoted.

9) Furnish the details about the tender condition viz penalty clause, Risk purchase clause, Fall clauses etc. and the details in respect of all above clauses. Tender conditions form 1 to 12 should be given in Technical envelope. Failing which, the tender will not be considered. In envelope No. 1 Rates should not be quoted but only mentioned whether the rates are F.O.R. Destination, All inclusive or not.

10) The tendere should read the terms and conditions stipulated in priced tender form and introductory page of Government Gazette, part-II supplements, All Zerox copies submitted alongwith tender should be duty attested.

11) Tenderer should mention the modes of payment eigher in Indian currency or foregin currency.

12) General Terms and Conditions are given in page No. 31st July 2008.

(Signature and Rubber Stamp of the Tenderer.)

## TENDER FORM CONDITIONS

**N. B.** (1) Priced tender forms should be invariably returned duly filled in and signed with seal along with the quotation. Tenderers should submit tenders in two envelopes as below :-

The first envelope should contain technical information of the unit such as -

**(A) Technical Envelope - Compulsory Documents -**

- (a) Draft in respect of E.M.D. or Registration with C.S.P.O. / concerned department.
- (b) Copies of S.S.I. Registration / C.S.P.O. Registration / N.S.I.C. / D.G.S and D Registration.
- (c) Valid Income Tax clearance certificate of unit.
- (d) Copy of D.G.S. and D's Rate Contract, if awarded. If not, please mention so.
- (e) If the Tenderer is trader, he should produce authorisation from the manufacturer, whose product he has quoted.
- (f) If the T/E is for ISI Mark, then the copy of valid BIS licence issued to the manufacturer.
- (g) Tenderer's condition regarding free delivery / free on Rail Destination, Taxes etc.

Clearance certificate from the concerned Sales Tax Officer certifying that the Sales Tax upto December end from the preceding year has been remitted or certificate from Competent Authority granting exemption from remittance of Sales Tax.

**N. B.** If any of the documents from the compulsory documents mentioned above is not furnished in the Technical Envelope, the Tender will be treated as invalid.

**(B) Additional Documents -**

- (a) List of installed machinery.
- (b) Details regarding past performance and M.S.T. Registration No.
- (c) Details regarding participation of such tender enquiry in the past, if any.

**(C) Commercial Envelope -**

In this envelope the tenderer shall submit "Price Tender Form" (purchased for himself and duly signed/attested) showing all inclusive rates.

**N. B.** Both the envelopes should be separately sealed and marked as 'Technical Tender Envelope' and 'Commercial Tender Envelope'.

Both these envelopes should be put and sealed in a big envelope. Details such as Tenderer's Name and Address, T/E No., product, date and time of the opening etc. should be clearly mentioned on the big envelope.

The price tender forms with detail specification, terms and conditions will be

available in the Institute of Science, Mumbai - 32.

- (2) Earnest Money @ 3% of the total value or Maximum of Rs. 5000/- in the form of Demand Draft should accompany with the tender. Cheques will not be accepted.
- (3) Following categories are exempted from payment of Earnest Money Deposit -
  - (i) Factory located in Maharashtra State and for the items registered with D.G.S. & D.
  - (ii) Government and Semi Government Undertakings.
  - (iii) S.S.I. Units permanently registered with the Director of Industries, Maharashtra and for the items mentioned in the Registration Certificate. (Relevant copy of the certificate should be attached to the quotation failing which, quotation will not be accepted at all).
  - (iv) Suppliers registered with C.S.P.O., Government of Maharashtra for the items mentioned in their Registration Certificate.
  - (v) S.S.I. Units registered with N.S.I.C. & I.S.I., Government of India.
- (4) Dimension & Units of quantities in quotation should be stated in Metric Units Only.
- (5) When the material is to be supplied from outside the Maharashtra State, the Stores should, if directed, be got inspected through D.G.S. & D. or from any other third party before despatch and the cost and the cost of the inspection will be borne by the supplier as per D.G.S. & D. Rules. However, if this Office / Indentor / Consignee desires to inspect the material, the stores should be offered for inspection to this office. T. A. & D. A. charges of the inspecting officer will have to be borne by the supplier.
- (6) Monthly capacity of the production which will be available for supply under the Rate Contract should be indicated in the quotations.
- (7) Successful tenderer should pay security deposit @ 3% of R/C., A/T purchase value. However, the following categories are exempted from paying security deposit-
  - (i) The suppliers registered with D.G.S. & D. having their factory in Maharashtra for the items so manufactured.
  - (ii) The suppliers registered with the D.C. (I) & C.S.P.O. on the list of approved suppliers for the value upto Rs. 25,000/- only.
  - (iii) S.S.I. units registered with the Directorate of Industries of unit registered or associated with Maharashtra Khadi & Gramodyog Board upto Rs. 50,000/- of purchase.
- (8) This tender is subject to the terms and conditions published in the introductory pages in part-II supplement of the Maharashtra Government Gazette.

- (9) If the tenderer has not paid E.M.D. or for his firm or unit is not found in possession of valid registration for the items for which tender enquiry is floated, his quotation will be treated as invalid and will not be considered at all.
- (10) Packing should be standard type consisting of paper wrapping, greasing cover with and water proof / new bessian cloth and acceptable to Railway Authority and Government Insurance Fund.
- (11) The photostat copy of permanent S.S.L Registration stating items manufactured should be accompanied with quotation.
- (12) Quotations are invited for fixing of Rate Contract for a period of one/two years. No guarantee of drawal of quality can however, be given during the currency of the period of Rate Contract.
- (13) Definite delivery period should be quoted.
- (14) Quotations against assurances of raw material quota will not be considered.
- (15) Tenderers will have to supply the stores to various Government Offices of Maharashtra Government and other Public Bodies, if necessary, in the State of Maharashtra.
- (16) The tenderers will have to supply the stores exactly as per the tender enquiry specifications and will be responsible to replace the defective supply at his risk and cost.
- (17) The supplier should undertake to extend the validity of the Bank Guarantee, if offered as security deposit in case, the supply of stores is delayed beyond the validity period of the Bank Guarantee.
- (18) This tender enquiry is meant for the whole of the Maharashtra state.
- (19) *Payment conditions* - 90% payment within 15 days from the date of receipt of stores and inspection note wherever necessary and balance amount within 30 days from the date of receipt of acceptable stores in satisfactory conditions will be made.
- (20) The tenderer should confirm whether all the operation processes /treatment is carried out in their own unit and also furnish complete list of machine and equipment installed in the factory.

- (21) Testing certificate of any competent authority of Government or Semi Government for their model should be furnished along with the quotation positively wherever necessary.
- (22) The Director, Institute of Science, reserves the right to reject any / all quotations without assigning any reasons.
- (23) 50 % quantity order is reserved for MSSIDC Ltd. & Mahila Arthik Vikas Mahamandal for parallel rate contract if they agree to supply at acceptable rate.
- (24) The tender fee once paid will not be refunded under any circumstances.
- (25) The quotations giving short validity period will not be considered at all.
- (26) Conditional offers received other than specified conditions mentioned in this tender enquiry are liable for rejection.
- (27) The tenderer should quote only one rate against the tender enquiry. The tenderer should give detailed reasons for quoting more than one rate, if he finds it to quote more than one rate necessary.
- (28) Any correspondence regarding reduction in price unless asked for after opening the tender enquiry will not be entertained at all and their tender will be liable for rejection.
- (29) The Tenderer should quote all inclusive (basic rates, Excise duty, packing/Fright Charge, Transport charges etc.) F.O.R., F.D., Destination rates. The rate of MST/CST included in the above rate should be shown separately.
- (30) The tenderer should invariably quote their valid sales Tax Registration No. and date.
- (31) The tenderer should invariably furnish a copy of valid Income Tax clearance Certificate along with the tender.
- (32) Testing charges as prescribed for the quotations samples / bulk supply samples to be tested as per T/E specifications at the National Test House / Testing Laboratories / Department of Chemical Technology or any other testing authorities will be borne by the suppliers from wherever necessary.
- (33) Unless and until samples are specifically called under specific tender enquiry samples may not be sent along with the tender.

(34) The tenderer should attach a copy of the power of attorney in respect of the persons who attends the Institute of Science, Mumbai - 32, for tender opening further followup work and also who is authorized to sign tenders, agreement and other relevant documents.

(35) The Institute of Science, Mumbai - 32, reserves the right to distribute the orders at acceptable rates amongst two or more tenders.

(36) The Institute of Science, Mumbai - 32, reserves the right to channelize the orders through any state Govt. undertakings looking to its past performance and also with a view to have equitable distribution of orders and in the public interest on 100 % basis at the acceptable rates.

(37) If there are any specific Government Directives such as reservation of items for units in Maharashtra, non-eligibility of price preference to S.S.I. units etc. for particular items and same would be applicable irrespective of the fact that it has not been incorporated in the tender notice.

(38) The tender should invariably quote a list of documents enclosed with the tender and the list should be duly signed by the authorized person.

(39) The firm from Mumbai should submit the tender in P.T.F. (Purchased from Institute of Science, Mumbai - 32,) only and the firm out side Mumbai, who are not in a position to purchase P.T.F. can enclose I.P.O. along with their tender in lieu of P.T.F. but they should mentioned in their tender that all tender enquiries are acceptable to them.

(40) All the tenderers should note that failure or violation of the following general conditions / General notes, their quotations are liable for *prima facie* rejection conditions No. 4, 9 (a), 9(d), 10 & 11.

(41) Tenderers should furnish the following particulars in their tenders (if it a last year R/C holder) :-

- Total quantity and value of orders received upto \_\_\_\_\_
- Total quantity and value of orders accepted by the R/C holder \_\_\_\_\_
- Total quantity and value of the quantity supplied upto \_\_\_\_\_
- Reasons for non acceptance of balance quantity \_\_\_\_\_
- Reasons for the back log \_\_\_\_\_

Notes :- Period in clauses (a) and (d) to be entered as on the last date of month immediately prior to the date of opening of tender.

(42) The tenderers when quoting for I.S.I. marked materials, the copy of valid I.S.I. license should be furnished (in such case traders should furnish a copy of I.S.I. license of their principal manufacturer) along with authorization.

- (43) Any price escalation will not be considered.
- (44) The tenderers should produce the models quoted for demonstrations whenever called for by The Institute of Science, Mumbai - 32.

Signature of Tenderer